Australian CensusAtSchool

Activity 301. Eye Colour

This activity uses the Excel file eye_colour.xls

In this activity you can investigate of the eye colour of students in your class. You will be asked to communicate your findings to your class by a short oral presentation that describes how your class compares to a sample population. You can present your findings in the form of a PowerPoint presentation that contains graphs. You will need a computer with a spreadsheet program (such as MS Excel) and a sample from the CensusAtSchool database will be used in your investigation.

1. The Scenario

While John was filling out the CensusAtSchool questionnaire, he stopped at question 13 and remembered a maths task from his previous school. In the task he had surveyed the students in his class about their eye colour. He had created a frequency table of the information and drawn a graph of the results. He thought that his previous class was different to this class. He then wondered if his present class would be typical of an Australian class.

When John looked back in his previous book he found the table below.

Eye Colour	Number of Students
Blue	12
Hazel	7
Green	3
Brown	4

2. Is your class the same as John's previous class?

Survey the students in your class to find the most common eye colour.

2.1 Paste a copy of the table of eye colour for your class and a graph here.

2.2 Compare the results of your class to John's previous class. You might need to draw a graph from John's table.

3. Is your class a typical Australian class?

One of the questions asked by the CensusAtSchool Questionnaire was about eye colour. Many tens of thousands of Australian students completed and submitted the CensusAtSchool questionnaire. A sample of this data could be used to represent a typical Australian class.

If you did not complete a questionnaire you should look at it before proceeding. You can see a copy of the questionnaire at: http://www.abs.gov.au. Click on the CensusAtSchool icon and go to the Student Area. There is a link to a copy of the questionnaire on the right hand side.

The collection of students who submitted the survey can be thought of as a population. We are going to name this collection of students the Australian CensusAtSchool Student Population (ACSP). Notice that ACSP is not the whole population of all students in Australia, only those who submitted a questionnaire.

You do not have access to all of the information about the ACSP. But, you are able to select simple random samples from the ACSP. You can then use the simple random samples to tell you about the whole population. Data from such a sample has been provided in the spreadsheet. This is exactly what a statistician does as part of their work. Use the table below to carry out your investigation.

Open the Excel sample, Eye_colour.xls, and use it to carry out your investigation. This sample came from the CensusAtSchool Random Sampler. Use this sample to prepare a frequency table similar to the one John found in his previous school book.

3.1 Paste a copy of the table of eye colour using the data from the MS Excel spreadsheet and draw a graph here.

3.2 Compare the results for your class with the data obtained from the CensusAtSchool random sample.

4. Prepare your presentation
You are to prepare a presentation to your class explaining the findings that you have made about the most common eye colour of students in your class and a typical Australian class of students. Any conclusions that you draw must be based on the CensusAtSchool data. Remember that people generally find graphs and diagrams easier to understand than tables of data.

Explanation of terms used in this activity.

CensusAtSchool Random Sampler
The random sampler is provided for students to obtain a simple random sample from the students who submitted their responses to the questionnaire (ACSP). The random sampler provides all the questionnaire responses for the number of students requested in the sample size.

The random sampler has rules that prevent a sample being given if there is a possibility of identifying an individual student from the responses they have made.

Data
The responses to the questions in the questionnaire provide the data.

Whole population
In this case the whole population is all the students in Australia who could have submitted a questionnaire. It is **not all the students** in years 5 to 10 in Australia, which is estimated to be 1,645,472 students in 2006. (ABS Publication 4221.0 Schools Australia 2004)

Simple Random Sample
All members of the sample are chosen at random and have the same chance of being in the sample. A Tattslotto draw is a good example. A sample of 6 numbers is randomly generated from a population of 45, with each number having an equal chance of being selected.

Australian CensusAtSchool Student Population- (ACSP)
This is the collection of students who submitted their responses to the questionnaire.

Help with using MS Excel

A number of introductory activities have been included to assist you in using Excel.

1. Generate a Random Sample as an Excel Workbook Here you will be shown how to generate a sample and convert it to an Excel Workbook.

2. Simplify a Random Sample The Random Sample Worksheet is very big. This activity shows you how to transfer only the data you need.

3. Sort and Use Functions Microsoft Excel has many features. This shows you how to sort and use various functions and formulae.

4. Create a Summary Table (Frequency Table) This activity shows you how to summarise the information into a table format.

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5. Draw A Graph (chart) This activity shows you how to a draw graph from a summary table.